

Appl. No. 10/788,577
Amdt. Dated Feb. 5, 2007
Reply to Office Action of January 11, 2007

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REMARKS

Applicant has amended claims 1, 13, and 14, canceled claim 15, and kept claims 3-6, 16-20 unchanged. Support for the V-shaped grooves in the top surface of the light guide plate being configured for promoting random diffraction of light, as essentially set forth in claims 1, 13, and 14, can be found, e.g., in Paragraphs [0024] and [0025]; and Figs. 1 and 2.

Claim Rejection Under 35 U.S.C. 103

Claims 1, 3-6, 13-16, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima, US Patent No. 6,906,767, in view of Nakamaru et al., JP 2001-281654.

In response, Applicant hereby respectfully traverses this rejection thereof.

Claim 1, as currently amended, recites in part:

“...a backlight module having a light source, a light guide plate, a reflector, and a quarter-wave plate, ... and a plurality of V-shaped grooves formed directly in a top surface of the light guide plate, the V-shaped grooves being configured for promoting random diffraction of light...” (Emphasis added.)

Claim 13, as currently amended, recites in part:

“...a reflective polarizing element located above the light guide plate; and
a plurality of V-shaped grooves formed directly in a top

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surface of the light guide plate, the V-shaped grooves being configured for promoting random diffraction of light.”
(Emphasis added.)

Claim 14, as currently amended, recites in part:

“a light guide plate interposed between the reflective polarizing element and the quarter-wave plate, the light guide plate having a top surface facing and spaced from the reflective polarizing element, wherein the light guide plate has a plurality of V-shaped grooves defined in the top surface thereof, the V-shaped grooves being configured for promoting random diffraction of light ...”
(Emphasis added.)

Iijima discloses a liquid crystal display but does not disclose a plurality of V-shaped grooves and a quarter-wave plate.

Nakamaru et al. discloses a backlight module having a plurality of fine projecting and recessing parts 102 and a quarter-wave plate 109. A plurality of V-shape grooves shown in FIG. 5 are one embodiment of the fine projecting and recessing parts 102.

Applicant has submitted before that the fine projecting and recessing parts 102 are formed on a light-emitting surface of the light guide plate 101 and **have a polarized light separation function**. As particularly shown, e.g., in Figs. 1 and 3, the **polarization produced thereby is clearly intended to be highly ordered and not at all random**. Further, given the teaching of the reference as a whole, one of ordinary skill in the art **would not expect the**

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V-shaped grooves shown in FIG 5 (as one kind of the fine projecting and recessing parts 102 used to achieve the desired polarization) **to be configured for promoting random diffraction of light**. Hence, Nakamura et al. fails to teach or suggest the V-shaped grooves of the present liquid crystal display, as set forth in claims 1, 13, and 14, as currently amended, and is thereby unable to overcome the shortcomings of Iijima.

Further, Applicant has to submit again that **Nakamura et al., as a whole, teaches away from the use thereof in the proposed modification of Iijima**. First of all, the Examiner relies upon Fig. 9 of Iijima and specifically on the light guide plate 72. As set forth at Column 11, Lines 56-64, Iijima discloses the following regarding the light guide plate 72:

Further, a plurality of small protrusions are formed on the surface of the light guiding member 72, and in view of the fact that the wavelength of visible light is approximately 380 nm to 700 nm, the size of each protrusion should be not less than approximately 5 μm in order that no influence due to diffraction may be generated; for the protrusions to be of a size not conspicuous to the naked eye, it is desirable for their size to be not less than 300 μm . (Emphasis added.)

As such, modifying such a surface to instead provide for a series of V-shaped grooves on the upper surface of the light guiding member 72, as proposed by the Examiner, would in fact eliminate at least a portion of the small protrusions that Iijima expressly provides thereupon. Accordingly, such a modification would **definitely constitute a change in the principle of operation of Iijima and could be considered to render the intended effect of the small protrusions upon the light guiding member 72 less than**

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satisfactory by decreasing the number thereof. MPEP §2143.01. As such, one of ordinary skill in the art at the time the invention was made would not have been motivated to modify Iijima in the manner proposed by the Examiner.

Additionally, Nakamaru et al. discloses that Figure 8 is a view of a conventional LCD element (the phrase of "□□□" signifies "conventional"). The polarization division plate 108 is used for transmitting P-polarized light and reflecting S-polarized light and is the essentially same as the reflective polarizing plate 40 disclosed by Iijima.

Specifically, at paragraph [0013]-[0017], of JP 2001-281654, Nakamaru et al. discloses that the projecting and recessing parts 102 are used to replace the conventional polarization division plate 108 because the utilization of the conventional polarization division plate 108 causes a series of technical problems, such as "increment in components", "display unevenness", and "bad yield".

The prior art teaching of Nakamaru et al., as a whole, must be considered (MPEP §2141.02 and the related case law cites), including those portions (i.e., the projecting and recessing parts 102) that teach away from the use of the prior art embodiments (i.e., the polarization division plate 108 shown in Figure 8) and/or the component usage disclosed by Iijima (i.e., the reflective polarizing plate 40). Moreover, Nakamura et al. clearly indicates that the projecting and recessing parts 102 are intended to yield orderly polarization, not random polarization, in the manner claimed. As such, Nakamura et al. clearly does not disclose or suggest V-shaped grooves configured for promoting random diffraction of light, as required in claims 1, 13, and 14, as

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amended.

Therefore, Iijima in view of Nakamura et al. fails to teach or suggest the present liquid crystal display, as set forth in claims 1, 13, and 14, as currently amended.

Accordingly, claims 1, 13, and 14 are submitted to be unobvious and patentable over Iijima in view of Nakamaru et al. Reconsideration and withdrawal of the rejection and allowance of claims 1, 13, and 14 are respectfully requested.

Claim 15 is canceled. The subject matter of claim 15, which should be allowable as discussed above, has been incorporated into claim 14.

Claims 3-6 and 16-20 each directly or indirectly depend from one of independent claims 1, 13 and 14, and, therefore, should also be allowable.

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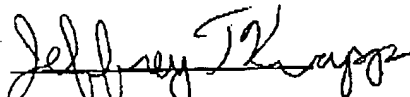
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Conclusion

In view of the foregoing, the present application as claimed in the pending claims is considered to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
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